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Endovascular revascularization in patients with acute obstructive mesenteric ischemia

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Clinical diagnosis of occlusive, acute mesenteric ischaemia (AMI) is still difficult and is sometimes delayed or even missed. Additionally, once diagnosed, prompt revascularization therapy is mandatory in order to avoid or reduce the risk of irreversible bowel ischaemia. Historically, surgical repair including thrombo-embolectomy and bowel resection was the gold standard for the treatment of thromboembolic AMI. However, this open surgical management is associated with poor clinical outcomes and mortality rates ranging from 60% to 90% (1). Early diagnosis and less invasive endovascular revascularization treatment options are becoming attractive as they might reduce the number of open surgical corrections which are potentially associated with substantial morbidity and worse overall clinical outcomes.

In the presented study by Puippe et al. (2), the potential added value of prompt endovascular removal of an obstruction causing acute, proximal superior mesenteric arterial thromboembolic occlusion is analysed. The authors mainly treated embolic AMI events : 12 out of 13 patients presented with thromboembolic AMI; only one patient presented with in-situ atherothrombotic AMI. The endovascular revascularization technique mainly consisted of a short period (2 hours) of catheter-directed in-situ thrombolysis followed by percutaneous, catheter-directed aspiration thrombectomy. It is still debatable whether catheter-directed thrombolysis really has added value in patients with thromboembolic AMI events as the age of the embolic material is not always clearly determined and it may potentially be older than one month, which might be associated with a significantly lower success rate of thrombolytic treatment while also being associated with a higher risk of serious bleeding complications. It may therefore be more logical to propagate the percutaneous aspiration technique as the endovascular method of choice to reopen an acutely occluded proximal superior mesenteric artery (3,4). The aspiration technique may have other advantages over catheter-directed pharmacologic therapies, such as quicker revascularization performed under local anaesthesia without bleeding risk. A potential drawback of the aspiration technique might be the need for several passes of large-lumen aspiration catheters within the superior mesenteric artery, resulting in spasms and vessel wall dissection, especially when dealing with atherosclerotic, small and tortuous visceral arteries in elderly patients. Additionally, small, distally located thrombi or fragmented emboli potentially cannot be completely aspirated, although complete revascularization of all side branches involved is not always required in order to obtain a satisfactory clinical result, as described in the presented study (2). Finally, in cases of thromboembolic AMI, there is no hypertrophied collateralization which can also result in a deeper visceral ischaemia than in a case of atherothrombotic AMI: this may be another reason why aspiration thrombectomy is the better endovascular treatment in case of embolic AMI, while catheter-directed pharmacologic thrombolysis might still be indicated to successfully treat an atherothrombotic AMI (5,6).

Despite early, quick and effective endovascular revascularization of the visceral arterial circulation, a significant number of patients still need at least close monitoring or laparoscopic / open surgical bowel inspection to rule out and treat bowel necrosis (1). In the presented study, 40% of patients who were successfully treated by endovascular techniques still subsequently required bowel resection, which emphasises the fact that despite quick and effective endovascular intervention, the time between onset of symptoms and diagnosis was still too long to avoid bowel necrosis.
In conclusion, it seems that percutaneous, endovascular revascularization of the proximal superior mesenteric artery for acute thromboembolic occlusion can be performed safely, quickly, and effectively, thereby potentially reducing the associated morbidity, most commonly related to bowel resection, reducing mortality and finally resulting in better clinical outcomes compared to open surgical repair, although this hypothesis should be tested by prospective, randomised multicentre trials.

References

1. Block T, Acosta S, Björck M. Endovascular and open surgery for acute occlusion of the superior mesenteric artery. J Vasc Surg 2010; 52: 959-966.
2. Puippe G, Suesstrunk J, Nocito A, et al. Outcome of endovascular revascularization in patients with acute obstructive mesenteric ischemia – a single-center experience. VASA 2015
3. Acosta S, Sonesson B, Resch T. Endovascular therapeutic approaches for acute superior mesenteric artery occlusion. Cardiovasc Intervent Radiol 2009; 32: 896-905.
4. Kawasaki R, Miyamoto N, Oki H, et al. Aspiration therapy for acute superior mesenteric artery embolism with an angled guiding sheath and guiding catheter. J Vasc Intervent Radiol 2014; 25: 635-639.
5. Maleux G, Wilms G, Stockx L, et al. Percutaneous recanalization and stent placement in chronic proximal superior mesenteric artery occlusion. Eur Rad 1997; 7: 1228-1230.
6. Schoots I, Levi M, Reekers J, et al. Thrombolytic therapy for acute superior mesenteric artery occlusion. J Vasc Intervent Radiol 2005; 16: 317-329.